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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/446,641 12/22/99 HATAZAWA

T P99.2641

EXAMINER

026263 IM51/0228
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ART UNIT

PAPER NUMBER

1745
DATE MAILED:

02/28/01

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/446,641

Applicant(s)
Hatazawa et al.

Examiner
Tracy Dove

Group Art Unit
1745



☒ Responsive to communication(s) filed on 22 Dec 1999

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 10-19 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 10-19 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 3 & 4

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 4/3/00 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Objections

Claim 12 is objected to because of the following informalities: a typographical error appears in line 1, "Claim 110" should be "Claim 10". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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The term "similar" in claim 14 is a relative term which renders the claim indefinite. The term "similar" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The term "similar" is indefinite because it is unclear what "similar in molecular structure" encompasses.

Regarding claims 15 and 16, the phrase a "material into or from which" is not grammatically correct. Examiner suggests a "material which is capable of intercalating or deintercalating a lithium ion".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

Claims 10-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Humphrey, Jr. et al., US 5,922,493.

Humphrey teaches an electrochemical cell having a positive electrode, an absorber-separator sometimes referred to as a solid electrolyte, and a negative electrode. At least one of the electrodes or the absorber-separator comprises a porous polyvinylidene fluoride (PVDF) [clm

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14], the PVDF electrodes having an electrode material combined therewith and the PVDF absorber-separator having an electrolyte material combined therewith. See col. 4, lin 44-52. The PVDF polymer may include either a homopolymer or copolymer, wherein the copolymers are either heterogeneous or homogeneous copolymers of vinylidene fluoride and hexafluoropropylene [clm 13]. The co-monomer is present from about 7 to about 25% by weight [clm 12]. The use of homogeneous copolymers for the manufacture of the electrode and electrolyte matrices is especially preferred. See col. 5, lin 9-22. Polymers that may be used are shown in Table III. The table shows various grades of KYNAR™ (trade name for PVDF and is commercially available) ranging in weight average molecular weights of 35,500 to 572,500. KYNAR™ 460 (572,000) and KYNAR™ 460 Black (373,500) are included in Table III [clm 11]. See col. 10, lin 33-34. Table IV also describes the combination of medium and high molecular weight grades to provide a PVDF homopolymer. See col. 10, lin 64-66. The positive electrode includes LiMn_2O_4 [clm 17] and the negative electrode includes petroleum coke (carbonaceous material) [clm 15,16]. See col. 14, lin 57-67.

Thus the claims are anticipated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Humphrey Jr. et al., US 5,922,493.

See discussion of Humphrey above.

Humphrey teaches the PVDF polymers are cast in thin porous membranes. The electrode materials or the electrolyte materials can be incorporated into a PVDF solution prior to casting it into a film or sheet, after which the solution is converted to a porous polyvinylidene fluoride membrane combined with the electrode or electrolyte materials.

Humphrey does not explicitly state the solid-electrolyte layer is formed on the face of an electrode.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because irrespective of how the solid electrolyte layer is formed, the products are the same. Thus, whether the solid electrolyte layers are formed directly on the electrode or formed as a separate layer, or any other method of forming the solid electrolyte layer is used, the layers, as an end result, are the same. Furthermore, the courts have held that when similar products are produced, the product-by-process limitations are obvious. In re Brown 173 USPQ 685, In re Fessman 180 USPQ 324.

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Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

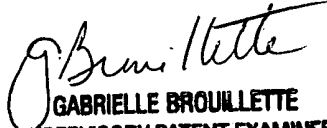
Takatera et al. 6,159,638 teaches a solid polymer electrolyte including PVDF having a weight average molecular weight of 10,000 to 1,000,000. See col. 4, lin 58-62.

Cabasso et al. 6,103,414 teaches a solid electrolyte membrane including PVDF having a number average molecular weight between about 10,000 and 10,000,000. See col. 5, lin 34-45.

Gozdz et al. 5,429,891 & 5,296,318 teach polymeric electrolytes including PVDF having a molecular weight ranges of about 100,000 to about 500,000 ('891) and about 155,000 to about 535,000 ('318).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is (703) 308-8821. The Examiner may normally be reached *Monday-Thursday from 8:00 AM - 6:30 PM*. My supervisor is Gabrielle Brouillette, who can be reached at (703) 308-0756. The Art Unit receptionist can be reached at (703) 308-0661 and the official fax number is (703) 305-3599.

February 23, 2001


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2/25/01